09| 682762

C of C

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent No.: 6,934,666 B2   :

Issued: August 23, 2005   :

Inventor(s): Saban et al.   :

Assignee: General Electric Company   :

For: METHOD FOR OPTIMIZING   :
STRATEGY FOR ELECTRIC MACHINES   :

Certificate
AUG 2 7 2007
of Correction

Certificate of Corrections Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR CERTIFICATE OF CORRECTION OF PATENT UNDER 37 C.F.R. 1.322(a)

Sir:

Attached is Form PTO/SB/44 suitable for printing.

Submitted herewith is a copy of the Notice of Allowance and Fee(s) Due and the Notice of Allowability dated April 11, 2005 and also a copy of the Amendment filed February 22, 2005, referenced in the Notice of Allowability. Applicants respectfully submit that the corrections shown below are in accordance with the Amendment filed February 22, 2005. The corrections thereof do not involve such changes in the patent as would constitute new matter or would require re-examination. Applicants respectfully request a Certificate of Correction for the following:

In Claim 6, column 7, line 10, between "the" and "lamination" insert -- optimum --.

In Claim 6, column 7, line 12, between "winding" and "lamination" insert -- and --.

AUG 2 7 2007

In Claim 7, column 7, line 23, delete "configuration" and insert therefor -- configurations --.

In Claim 9, column 7, line 54, between "winding" and "lamination" insert -- and --.

In Claim 13, column 8, line 20, between "geometries" and "satisfy" insert -- that --.

In Claim 14, column 8, line 25, between "is" and "winding" insert -- a --.

In Claim 15, column 8, line 34, between "winding" and "surface" insert -- response --

In Claim 19, column 9, line 9, between "programmed" and "utilize" insert -- to --.

In Claim 20, column 9, line 14, between "programmed" and "output" insert -- to --.

In Claim 21, column 9, line 20, between "and" and "configuration" insert -- lamination --.

In Claim 23, column 9, line 43, between "optimization" and "is" insert -- module --.

In Claim 25, column 9, line 55, between "optimization" and "is" insert -- module --.

In Claim 26, column 10, line 5, between "optimization" and "further" insert -- module --.

In Claim 30, column 10, line 46, between "optimization" and "further" insert -- module --.

In Claim 30, column 10, line 47, delete "ooptimum" and insert therefor -- optimum --

In Claim 31, column 10, line 52, between "optimum" and "solution" insert -- winding --.

The corrections are not due to any error by Applicants and no fee is due.

The Assignment for this patent is recorded on Reel 012063/Frame 0906.

Respectfully submitted,

Date: 8/20-07

William J. Zychlewicz
Reg. No. 51,366
ARMSTRONG TEASDALE LLP
One Metropolitan Square, Suite 2600
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AUG 27 2007

2

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO.	:	6,934,666 B2
APPLICATION NO.	:	09/682,762
ISSUE DATE	:	August 23, 2005
INVENTOR(S)	:	Saban et al.

PAGE 1 OF 1

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In Claim 6, column 7, line 10, between "the" and "lamination" insert -- optimum --.

In Claim 6, column 7, line 12, between "winding" and "lamination" insert -- and --.

In Claim 7, column 7, line 23, delete "configuration" and insert therefor -- configurations --.

In Claim 9, column 7, line 54, between "winding" and "lamination" insert -- and --.

In Claim 13, column 8, line 20, between "geometries" and "satisfy" insert -- that --.

In Claim 14, column 8, line 25, between "is" and "winding" insert -- a --.

In Claim 15, column 8, line 34, between "winding" and "surface" insert -- response --.

In Claim 19, column 9, line 9, between "programmed" and "utilize" insert -- to --.

In Claim 20, column 9, line 14, between "programmed" and "output" insert -- to --.

In Claim 21, column 9, line 20, between "and" and "configuration" insert -- lamination --.

In Claim 23, column 9, line 43, between "optimization" and "is" insert -- module --.

In Claim 25, column 9, line 55, between "optimization" and "is" insert -- module --.

In Claim 26, column 10, line 5, between "optimization" and "further" insert -- module --.

In Claim 30, column 10, line 46, between "optimization" and "further" insert -- module --.

In Claim 30, column 10, line 47, delete "ooptimum" and insert therefor -- optimum --.

In Claim 31, column 10, line 52, between "optimum" and "solution" insert -- winding --.
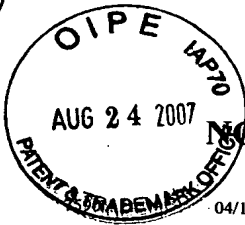
MAILING ADDRESS OF SENDER:
William J. Zychlewicz
Armstrong Teasdale LLP
One Metropolitan Sq., Suite 2600
St. Louis, MO 63102

AUG 27 2007

UNITED STATES PATENT AND TRADEMARK OFFICE

(stamp) OIPE AUG 24 2007 PATENT & TRADEMARK OFFICE

NOTICE OF ALLOWANCE AND FEE(S) DUE

23465   04/11/2005

JOHN S. BEULICK
C/O ARMSTRONG TEASDALE, LLP
ONE METROPOLITAN SQUARE
SUITE 2600
ST LOUIS, MO 63102-2740

EXAMINER
PHAN, THAI Q

ART UNIT	PAPER NUMBER
2128	

DATE MAILED: 04/11/2005

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/682,762	10/15/2001	Daniel M. Saban	03-DV-7052	8028

TITLE OF INVENTION: METHOD FOR OPTIMIZING STRATEGY FOR ELECTRIC MACHINES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1400	$300	$1700	07/11/2005

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

I. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

II. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

Entered into PALM/PIPS
Date: 4/26/2005
By: MRG

Page 1 of 3

PTOL-85 (Rev. 12/04) Approved for use through 04/30/2007.

ENTERED
Date: 4/16/05
By: (signature)

SCANNED
By: LD 4/26/05

12552-194

AUG 27 2007

Notice of Allowability	Application No.	Applicant(s)
	09/682,762	SABAN ET AL.
	Examiner	Art Unit
	Thai Q. Phan	2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--
All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

. ☒ This communication is responsive to *applicants' amendment filed on 02/22/2005*.

. ☒ The allowed claim(s) is/are *1-31*.

. ☒ The drawings filed on *02/22/05* are accepted by the Examiner.

. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

    1. ☐ Certified copies of the priority documents have been received.

    2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

. ☐ Notice of References Cited (PTO-892)

. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____

☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☐ Examiner's Amendment/Comment

8. ☐ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

Thai Phan
Thai Phan
Primary Examiner
AU: 2128

AUG 27 2007

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Daniel M. Saban :

: Art Unit: 2128

Serial No.: 09/682,762 :

: Examiner: Thai Q. Phan

Filed: October 15, 2001 :

:

For: METHOD FOR OPTIMIZING :
STRATEGY FOR ELECTRIC :
MACHINES :

:

:

Mail Stop: Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL

1. Transmitted herewith is: Amendment in Response to Office Action dated November
22, 2004 (24 pgs.) One (1) Sheet of Replacement Formal Drawings; and Certificate of
Transmission Via Facsimile (1 pg.)

STATUS

2. Applicant

_____ claims small entity status.

___X___ is other than a small entity.

CERTIFICATE OF MAILING/TRANSMISSION

CERTIFICATE OF MAILING BY EXPRESS MAIL TO
THE COMMISSIONER FOR PATENTS
Express Mail No.:
Date:
I hereby certify that the documents listed above are being
deposited with the United States Postal Service "Express Mail
Post Office to Addressee" service under 37 C.F.R. §1.10 on the
date indicated above in an envelope addressed to: Mail Stop:
Amendment, Commissioner for Patents, P.O. Box 1450,
Alexandria, VA 22313-1450.

Date: February 22, 2005

FACSIMILE

X transmitted by facsimile to the Patent and
Trademark Office
Via Facsimile No.: (703) 872-9306

Patrick W. Rasche
Reg No.: 37,916

AUG 27 2007

EXTENSION OF TERM

3. The proceedings herein are for a patent application and the provisions of 37 C.F.R. 1.136 apply.

(complete (a) or (b), as applicable)

(a) _____ Applicant petitions for an extension of time under 37 C.F.R. 1.136
(Fees: 37 C.F.R. 1.17(a)-(d) for the total number of months checked below:)

Extension for response within:	Other than small entity Fee	Small entity Fee (if applicable)
_____ first month	$ 120.00	$ 60.00
_____ second month	$ 450.00	$ 225.00
_____ third month	$ 1,020.00	$ 510.00
_____ fourth month	$1,590.00	$ 795.00
_____ fifth month	$2,160.00	$1,080.00

Fee: $ _____

If an additional extension of time is required, please consider this a petition therefor.

(Check and complete the next item, if applicable)

_____ An extension of _____ months has already been secured. The fee paid therefor $_____ is deducted from the total fee due for the total months of extension now requested.

Extension fee due with this request $_____

OR

(b) **X** Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition for extension of time.

FEE FOR CLAIMS

4. The fee for claims (37 C.F.R. 1.16(b)-(d)) has been calculated as shown below:

	(Col. 1) CLAIMS REMAINING AFTER AMENDMENT		(Col. 2) HIGHEST NO. PREVIOUSLY PAID FOR	(Col. 3) PRESENT EXTRA	SMALL ENTITY ADDITIONAL. RATE FEE	OR	OTHER THAN SMALL ENTITY ADDITIONAL RATE FEE
TOTAL	31	MINUS	31	=0	x $25.00 = $		x $50.00 = $0
INDEP.	6	MINUS	3	=3	x $100.00 = $		x $200.00 = $600.00
	FIRST PRESENTATION OF MULTIPLE DEP. CLAIM				+ $180.00 = $		+ $360.00 = $
					TOTAL ADDITIONAL FEE $	OR	TOTAL ADDITIONAL FEE $600.00

(a) _____ No additional fee for Claims is required

OR

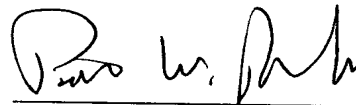(b) __X__ Total additional fee for claims required $600.00

FEE PAYMENT

5. _____ Attached is a check in the sum of $_____

__X__ Charge Deposit Account No. 01-2384 the sum of $600.00.
A duplicate of this transmittal is attached.

FEE DEFICIENCY

6. __X__ If any additional extension and/or fee is required, charge Deposit Account No. 01-2384.

AND/OR

__X__ If any additional fee for claims is required, charge Deposit Account No. 01-2384.

7. _____ Other:

Patrick W. Rasche
Reg. No.: 37,916
ARMSTRONG TEASDALE LLP
One Metropolitan Square, Suite 2600
St. Louis, MO 63102
314/621-5070

AUG 27 2007

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Daniel M. Saban et al.

Serial No.: 09/682,762

Filed: October 15, 2001

For: METHOD FOR OPTIMIZING STRATEGY
          FOR ELECTRIC MACHINES

OIPE
AUG 24 2007
PATENT & TRADEMARK OFFICE

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Art Unit: 2128

Examiner: Phan, Thai Q

AMENDMENT

Mail stop: Amendment
Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In response to the Office Action dated November 22, 2004, please amend the above identified application as follows.

1

AUG 27 2007

IN THE CLAIMS

1.   (currently amended) A method to facilitate optimizing a winding and lamination configuration of an electric machine uses a computer including a microprocessor for executing computer functions, a database for storing optimization data, and a two-level optimization algorithm having a first optimization module and a second optimization module, said method comprises:

generating a plurality of data sets utilizing the first optimization module;

determining an optimum response surface based the data sets, utilizing the second optimization ~~module;~~module, wherein said determining the optimum response surface includes applying one of lamination geometry variable data and a set of winding parameters at a time different than a time at which the other of the lamination geometry variable data and the set of winding parameters is applied;

determining an optimum data set based on the optimum response surface, utilizing the first optimization module; and

outputting an optimum winding and lamination configuration based on the optimum data set.

2.   (original) A method in accordance with Claim 1 wherein generating a plurality of data sets comprises generating a plurality of winding configurations utilizing at least one of winding parameters and motor level variables stored in the database.

3.   (currently amended) A method ~~in accordance with Claim 2~~to facilitate optimizing a winding and lamination configuration of an electric machine uses a computer including a microprocessor for executing computer functions, a database for storing optimization data, and a two-level optimization algorithm having a first optimization module and a second optimization module, said method comprises:

generating a plurality of data sets utilizing the first optimization module, wherein generating the plurality of data sets comprises generating a plurality of

AUG 27 2007

<u>winding configurations utilizing at least one of winding parameters and motor level</u>

<u>variables stored in the database;</u>

<u>determining an optimum response surface based the data sets, utilizing the</u> <u>second optimization module;</u> wherein determining ~~an optimum~~<u>the optimum</u> response surface comprises:

determining at least one lamination geometry for each winding configuration ~~that will combine with each winding configuration~~ to satisfy a first set of performance constraints;

outputting each lamination geometry to the database; and

determining an optimum geometry response surface that satisfies a second set of performance constraints, based on the lamination ~~geometries.~~<u>geometries;</u>

<u>determining an optimum data set based on the optimum response surface,</u> <u>utilizing the first optimization module; and</u>

<u>outputting an optimum winding and lamination configuration based on the</u> <u>optimum data set.</u>

4.   (original) A method in accordance with Claim 3 wherein determining an optimum data set comprises computing an optimum winding solution based on the optimum geometry response surface and predetermined manufacturing objectives.

5.   (currently amended) A method in accordance with Claim 4 wherein outputting ~~an optimum~~<u>the optimum</u> winding and lamination configuration comprises:

outputting ~~an optimum~~<u>the optimum</u> winding and lamination configuration based on the optimum winding solution, and

outputting cost and performance values corresponding to the optimum winding and lamination configuration.

6   (original) A method in accordance with Claim 1 wherein generating a plurality of data sets comprises generating a plurality of lamination geometries that

AUG 27 2007

satisfy a first set of performance constraints, wherein the plurality of lamination geometries are selected from standard manufactured lamination geometries stored in the database.

7.   (currently amended) A method in accordance with Claim 6 wherein determining an optimum response surface comprises:

utilizing <u>the</u> winding parameters and motor level variables stored in the database to determine at least one winding configuration for each generated lamination geometry that will combine with the lamination geometry to satisfy a second set of performance constraints;

outputting each winding configuration to the database; and

determining an optimum winding response surface.

8.   (original) A method in accordance with Claim 7 wherein determining an optimum data set comprises computing an optimum lamination solution based on the optimum winding response surface and predetermined manufacturing objectives.

9.   (currently amended) A method in accordance with Claim 8 wherein outputting ~~an optimum~~<u>the optimum</u> winding and lamination configuration comprises:

outputting ~~an optimum~~<u>the optimum</u> winding and lamination configuration based on the optimum lamination solution, and

outputting cost and performance values corresponding to the optimum winding and lamination configuration.

10.   (currently amended) A system to facilitate optimizing a winding and lamination configuration of an electric machine, said system comprising a computer, said computer comprising:

a microprocessor for executing computer functions;

a database coupled to said microprocessor for storing data; and

4

AUG 27 2007

a two-level optimization algorithm comprising a first optimization module and a second optimization module, said two-level optimization algorithm using data stored in said database and executed by said ~~microprocessor.~~microprocessor, said first optimization module configured to apply one of lamination geometry variable data and a set of winding parameters at a time different than a time at which the other of the lamination geometry variable data and the set of winding parameters is applied.

11.   (original) A system in accordance with Claim 10 wherein said first optimization module is a winding optimization module, said computer programmed to utilize said winding optimization module to generate a plurality of winding configurations, said winding optimization module utilizing at least one of winding parameters and motor level variables stored in said database.

12.   (currently amended) A system in accordance with Claim 11 wherein said second optimization module is a lamination optimization module, said computer further programmed to utilize said lamination optimization module to determine at least one lamination geometry for each winding configuration ~~that will combine with the winding configuration~~ to satisfy a first set of performance constraints.

13.   (currently amended) A system ~~in accordance with Claim 12~~to facilitate optimizing a winding and lamination configuration of an electric machine, said system comprising a computer, said computer comprising:

a microprocessor for executing computer functions;

a database coupled to said microprocessor for storing data; and

a two-level optimization algorithm comprising a first optimization module and a second optimization module, said two-level optimization algorithm using data stored in said database and executed by said microprocessor, wherein said first optimization module is a winding optimization module, said computer programmed to utilize said winding optimization module to generate a plurality of winding configurations, said winding optimization module utilizing at least one of winding parameters and motor level variables stored in said database, said second optimization module is a lamination optimization module, said computer further programmed to utilize said lamination optimization module to determine at least one lamination

AUG 27 2007

geometry for each winding configuration to satisfy a first set of performance constraints, and wherein said computer further programmed to utilize said lamination optimization module to generate an optimum geometry response surface based on the lamination geometry, the optimum geometry response surface satisfying a second set of performance constraints.

14.   (original) A system in accordance with Claim 13 wherein said computer further programmed to utilize said winding optimization module to generate an optimum winding solution based on the optimum geometry response surface and predetermined manufacturing objectives.

15.   (original) A system in accordance with Claim 14 wherein said computer further programmed to output an optimum winding and lamination configuration based on the optimum winding solution, and to output cost and performance values corresponding to the optimum winding and lamination configuration.

16.   (currently amended) A system in accordance with Claim 10 wherein said first optimization module is a lamination optimization module, said computer programmed to utilize said lamination optimization module to generate a plurality of lamination geometries that satisfy a first set of performance constraints, and the plurality of lamination geometries selected from a set of standard manufactured lamination geometries stored in said database.

17.   (currently amended) A system in accordance with Claim 16 wherein said second optimization module is a winding optimization module, said computer further configured to utilize the winding parameters and motor level variables stored in said database to determine at least one winding configuration for each generated lamination geometry that will combine with the generated lamination geometry to satisfy a second set of performance constraints.

18.   (original) A system in accordance with Claim 17 wherein said computer further configured to utilize said winding optimization module to generate an optimum winding response surface based on the winding configurations.

AUG 27 2007

19.   (original) A system in accordance with Claim 18 wherein said computer further configured to utilize said lamination optimization module to generate an optimum lamination solution based on the optimum winding response surface and predetermined manufacturing objectives.

20.   (original) A system in accordance with Claim 19 wherein said computer further configured to output an optimum winding and lamination configuration based on the optimum lamination solution, and to output cost performance values corresponding to the optimum winding and lamination configuration.

21.   (currently amended) A two-level optimization algorithm to facilitate optimizing a winding and lamination configuration of an electric machine comprising;comprising:

        a first optimization module; and

        a second optimization module;

        wherein said first optimization module configured to generate a first optimization solution based on output from said second optimization module and said second optimization configured to generate a second optimization solution based on output from said first optimization module, said two-level optimization algorithm configured to generate a global optimization solution based on the first and second optimization solutions.solutions, said first optimization module configured to apply one of lamination geometry variable data and a set of winding parameters at a time different than a time at which the other of the lamination geometry variable data and the set of winding parameters is applied.

22.   (original) An algorithm in accordance with Claim 21 wherein said first optimization module is a winding optimization module configured to generate a plurality of winding configurations utilizing at least one of winding parameters and motor level variable stored in a database.

23.   (currently amended) An algorithm in accordance with Claim 22 wherein said second optimization module is a lamination optimization module

AUG 27 2007

configured to generate at least one lamination geometry for each winding configuration ~~that will combine with the winding configuration~~ to satisfy a first set of performance constraints.

24.   (currently amended) ~~An algorithm in accordance with Claim 23~~A two-level optimization algorithm to facilitate optimizing a winding and lamination configuration of an electric machine comprising:

a first optimization module;

a second optimization module;

wherein said first optimization module configured to generate a first optimization solution based on output from said second optimization module and said second optimization configured to generate a second optimization solution based on output from said first optimization module, said two-level optimization algorithm configured to generate a global optimization solution based on the first and second optimization solutions, wherein said first optimization module is a winding optimization module configured to generate a plurality of winding configurations utilizing at least one of winding parameters and motor level variable stored in a database, wherein said second optimization module is a lamination optimization module configured to generate at least one lamination geometry for each winding configuration to satisfy a first set of performance constraints, and wherein said lamination optimization module further configured to generate an optimum geometry response surface based on the lamination geometry, the optimum geometry response surface satisfying a second set of performance constraints.

25.   (original) An algorithm in accordance with Claim 24 wherein said winding optimization module further configured to generate an optimum winding solution based on the optimum geometry response surface and predetermined manufacturing objectives.

26.   (currently amended) An algorithm in accordance with Claim 25 wherein the global optimization solution is ~~an optimum~~the optimum winding and lamination configuration based on the optimum winding solution, said two-level

AUG 27 2004

optimization algorithm further configured to output cost and performance values corresponding to the optimum winding and lamination configuration.

27.   (original) An algorithm in accordance with Claim 21 wherein said first optimization module is a lamination optimization module configured to generate a plurality of lamination geometries that satisfy a first set of performance constraints, the plurality of lamination geometries selected from standard manufactured lamination geometries stored in said database.

28.   (currently amended) An algorithm in accordance with Claim 27 wherein said second optimization module is a winding optimization module configured to utilize the winding parameters and motor level variables stored in a database to determine at least one winding configuration for each generated lamination geometry that will combine with the generated lamination geometry to satisfy a second set of performance constraints.

29.   (original) An algorithm in accordance with Claim 28 wherein said winding optimization module further configured to generate an optimum winding response surface based on the winding configurations.

30.   (original) An algorithm in accordance with Claim 29 wherein said lamination optimization module further configured to generate an optimum lamination solution based on the optimum winding response surface and predetermined manufacturing objectives.

31.   (original) An algorithm in accordance with Claim 30 wherein the global optimization solution is an optimum winding and lamination configuration based on the optimum lamination solution, the two-level optimization solution further configured to output cost performance values corresponding to the optimum winding and lamination configuration.

AUG 27 2007